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ABSTRACT

This description of career education activities in Ontario-Montclair School District (California), was prepared as part of a study conducted to identify evaluated, exemplary career education activities which represent the best of the current career education programs and practices referred to in Public Law 93-380. (See CE 018 212 for the final report of this study.) This document describes one of the ten projects that were selected from among 250 projects submitted. It presents one locale's way of successfully implementing a career education activity, the results of which are educationally significant. Each of the ten projects are reported in a similar format, including the following descriptions: project overview; program development; materials and activities; parent and community involvement; staffing and management; costs; evidence of effectiveness; and conclusions. In this report of the Matching Attitudes and Talents to Career Horizons (MATCH) project, the ultimate goal is stated as follows: to infuse a career education component into the regular K-8 curriculum. (Goals were formulated in ten areas of career education, including career awareness, consumer competencies, career planning, and decision making.) The primary subjects are identified as K-8 students from a heterogeneous community of whites, latinos, and blacks and the evaluation design is described as a pre- and posttest on intact treatment and control classes using four project-developed instruments. (BM)

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PROJECT MATCH

Ontario-Montclair School District

Ontario, California

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30 June 1978

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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CE 018 228

FOREWORD

This activity description was prepared as part of a study conducted by the American Institutes for Research (AIR) under contract No. 300-77-0303 to the U.S. Office of Education. The purposes of the study were to identify evaluated, exemplary career education activities; to recommend identified activities to the Joint Dissemination Review Panel (JDRP) of the Education Division, Department of Health, Education, and Welfare; to prepare descriptions of identified activities; and to develop a handbook with six models for evaluating career education activities.

The criteria established for screening activities in this study intentionally limited choices to those whose evaluation reports presented evidence of effectiveness. Close attention was given to the soundness of evidence in evaluation reports. A minimum requirement for this evidence of effectiveness was that some comparison standard be provided so that gains made by the students participating in the activity could be attributed to the impact of the activity. After confidence in the evidence of effectiveness was established, further criteria were applied. These criteria included consistent relationships between a well-planned assessment of needs, a statement of desired student outcomes, the selection of instruments, and the procedures used in data collection, management, and analysis.

This document describes one of ten projects that was selected from among 250 submitted. It presents one locale's way of successfully implementing a career education activity, the results of which are educationally significant. Although the description reflects an activity developed in response to local needs, other school districts with similar needs may wish to adapt parts or all of it according to their own circumstances and philosophy.

We are especially grateful to the staff of Project MATCH and to the many school staff members who generously gave their time to answer questions from AIR site visitors. They extended a special kind of hospitality and spared no amount of effort to provide the information necessary to prepare this description. They made it possible for the site visitors to see the program in action, as well as to understand the philosophy and strategies that underlie its operations.

Project MATCH materials are judged to be free of bias with regard to race, sex, age, income levels, and type of occupation.

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PROJECT OVERVIEW

TITLE & LOCATION: Project MATCH (Matching Attitudes and Talents to Career Horizons)
Ontario-Montclair School District
Box 313
Ontario, California 91761

TYPE: Infusion

PROJECT DIRECTOR: Norman Steinaker
Ph.: (714) 983-7412

SETTING: The Ontario-Montclair school district is located 40 miles east of Los Angeles in San Bernardino county. The district serves a heterogeneous community of whites, latinos, and blacks. The population is predominantly working class, with 20% of the workers holding professional or managerial positions.

STAFF: Project MATCH operates within the framework of existing school staffing arrangements. Because it is curriculum-oriented, it does not require changes in regular staff assignments, duties, or procedures. To adopt the project, most small school districts could use their existing staff with perhaps the addition of a part-time clerical person to duplicate materials. Larger districts, however, may need to employ a part-time director to coordinate the project activities.

GOALS: Project MATCH is designed to infuse a career education component into the regular curriculum of a K-8 school district program. Goals have been formulated in ten areas of career education, including career awareness, self-awareness, consumer competencies, and career planning and decision making.

EVALUATION DESIGN: The evaluation design utilized pre- and posttests on intact treatment and control classes. These classes were randomly selected, one class per grade, from schools assigned to the treatment and control conditions. Student attainment of project objectives was assessed by four project-developed career education tests with established reliability and validity.

MATERIALS: The project has developed behavioral objectives in ten areas of career education; a grade-by-grade guide to achieving these objectives; a series of curriculum infusion units (110) that integrate career education concepts into most curriculum areas; special individual programs; a simulation program in civics; and career education evaluation instruments. The project has also developed an inservice training model to introduce teachers to the project.

COSTS: Because Project MATCH is curriculum-oriented, it does not require the addition of new staff. Accordingly, the project can be implemented with relatively little cost. The major costs are for materials, inservice training, consultation, and possibly the salary of a part-time coordinator or liaison person.

PROJECT DESCRIPTION

PROGRAM DEVELOPMENT

Project MATCH was developed in response to a set of needs expressed by parents, teachers, and administrators in the Ontario-Montclair School District. For some time before the project was established, these groups indicated that the district curriculum, particularly at the junior high level, needed revision and extension. They shared a general concern that the curriculum was somewhat narrow, antiquated, and irrelevant to the real-life aspirations of students. In particular, these groups were concerned that the existing curriculum was not adequately preparing students to enter the job market. Furthermore, they were concerned about the students' generally low scores on standardized tests of basic skills, and they suggested that the situation could be improved if students understood why basic skills are needed for success in the job market.

In response to these concerns voiced by teachers, parents, and administrators, the district initiated an opinion survey of selected samples of students, parents, teachers, and community members. The following instruments[1] were used in the survey:

- A Career Education Survey (an agree-disagree survey keyed to 24 statements regarding Career Education) given to principals and staffs of target schools and to the district advisory committee.
- A Career Information Survey (adapted from a Santa Barbara High School, Santa Barbara, California, District Career Information Survey) for students in grades K, 1, and 2.
- An Occupational Information Survey (adapted from the Santa Barbara High School District Career Information Survey) for grades 3, 4, 5, and 6.
- A Career Education Survey for grades 7 and 8.

The following are the key survey results that led to the establishment of Project MATCH.

- Students lacked an understanding of career education concepts and indicated that they learned very little from school regarding available careers and jobs.
- Students generally felt that the guidance and counseling services available were inadequate.

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[1] Copies of these instruments or information about the opinion survey are available upon request from Project MATCH.

- Most eighth graders indicated that they intended to enter the labor force as soon as they graduated from high school, if not earlier.
- A majority of eighth graders indicated that they already had careers in mind. (This finding suggested that students were making career choices without adequate information, since there was no organized career education program in the district at this time.)
- Teachers and administrators indicated that the teaching of career education was at best fragmented and uncoordinated.

These findings confirmed the need for an expanded K-8 career education program in the district. A career education planning group was formed that included representatives of the administrators, teachers, parents, and students of the district. After introductory workshops to introduce the concept of career education to the teachers, more intensive workshops were held by the curriculum development staff of the school district. The proposal for the project was written by the full-time curriculum development specialist of the district in collaboration with teachers, administrators, and representatives of community groups. Essential to the success of the project was the full participation of teachers in every aspect of its planning and development. Suggested steps for setting up a planning group and adopting the project are presented later.

Context and Intended Users

The Ontario-Montclair school district is located 40 miles east of Los Angeles in the west end of San Bernardino County. The economy of the area was originally based on citrus fruits and vineyards. The economic importance of agriculture, however, greatly diminished after World War II, although Sun Kist, Inc., maintains its orange processing plant within the school district. Major employers within the school district and the surrounding areas now include General Electric, Lockheed Air Service, and Kaiser Steel. A number of smaller industries are also located in the area. Even with this variety of industrial establishments, however, the area has an unemployment rate of nearly 10%, which is higher than that of many surrounding areas.

The district encompasses a wide range of socioeconomic and ethnic groups. The population is approximately 60% white, 34% Spanish surnamed, 5% black, and 1% other ethnic groups. The population is predominantly working class, with most family heads employed in unskilled or semi-skilled positions. The schools chosen to participate in Project MATCH reflect the diverse social and ethnic composition of the school district.

Data collected and analyzed concerning the effectiveness of the project with this heterogeneous population indicate that it is appropriate for a broad spectrum of students. Further, support for this contention is offered by an analysis, conducted later, of the project's effects on various subgroups. Groups were defined by sex, intelligence, ethnic group (Spanish surnamed versus non-Spanish surnamed) and socioeconomic status. The results of the analysis revealed no significant differences for most groups in their attainment of the project's objectives.

Goals and Objectives

Ten career education areas were identified and terminal performance objectives (TPOs) were written corresponding to each of the areas. For each area, a "general terminal performance objective" (GTPO) was developed that summarized the TPOs within it. The ten career education areas and their associated GTPOs are shown below.

Career Education Area	General Terminal Performance Objective
1. Career Awareness	Students will be exposed to the various career clusters and will realistically select those clusters related to their individual aptitudes, interests, and abilities.
2. Self-Awareness	Students will develop positive attitudes toward self and others, attach worth and value to work, and find meaning and direction to life through school experience.
3. Attitude Development	Students will develop positive attitudes toward work by understanding the contribution work makes to humanity.
4. Educational Awareness	Students will recognize their educational experiences as an integral part of their total career preparation and development.
5. Economic Awareness	Students will be aware of the basic structure of our economic system and the freedom experienced therein, through recognition of economic options available to them.
6. Consumer Competencies	Students will, through various experiences, such as role playing, guidance of teachers, and use of community resources, become aware of and competent in their role as consumers.

7.	Career Orientation	Students will use career information that will reveal job options available to them in the world of work.
8.	Career exploration	Students will participate in a program of career exploration that will contribute to personal and career satisfaction.
9.	Career Planning and Decision Making	Students will participate in their career development process and increase their knowledge of themselves, the world of work, and the society that affects them.
10.	Civic responsibility	Students will realize their roles (rights, responsibilities, and privileges) as citizens in a democratic society.

MATERIALS AND ACTIVITIES

Project MATCH has developed a diverse educational program for introducing and infusing career education concepts into the regular curriculum. The program consists of the following major elements.

Terminal Performance Objectives

A scope and sequence document has been developed for the entire program; it includes an "introduction," "reinforcement," and "mastery schedule" as well as a "mastery level definition." Altogether 63 objectives are presented in the ten areas of career education. The document (18 pages) is easy to use with objectives clearly stated. Any district can easily adapt this model and develop its own objectives for a K-8 career education program. A sample of the terminal performance objectives can be found in Appendix A.

Career Education Skill Continuum

An extensive grade-by-grade guide has been developed for achieving the objectives contained in the terminal performance objectives. It consists of ten volumes, one for each category of career education objective. The purpose of the continuum is to help teachers become aware of the appropriate sequence of career education objectives and to provide a series of graded activity sequences designed to achieve these objectives. For each activity a content base is suggested, allowing teachers to infuse career education concepts into the regular curriculum. All content areas are represented in the skill continuum, including physical education. A list of project-developed and commercial resource materials is also included for each series of activities in the skill continuum. Additionally, the

continuum includes a section on evaluation that suggests measures and methods for determining student achievement. Each volume contains an appendix that includes bulletin board suggestions, a glossary of terms, additional games and activities, and other teacher support materials -- all keyed to specific grade levels.

A teacher can flexibly use the skill continuum by selecting resource and evaluation materials appropriate for the students' achievement level and sequencing a series of activities designed to achieve the objective. The guide can be used with individual students, small groups, or the total class. Essentially, the continuum is a planning tool that allows the teacher to infuse career education concepts into the curriculum without disrupting existing curriculum sequences.

The comprehensive nature of the skill continuum allows it to be used as a free-standing competency-based career education program. Or it can be used, as in Project MATCH, to supplement other components of a program. In either case, the continuum represents a rich resource with the possibilities of multiple uses in a career education program. See Appendix B for a sample page from the career education skill continuum.

Evaluation Instruments

Four valid and reliable evaluation instruments have been developed to assess student attainment of career education objectives. These instruments are "Career Awareness" K-1, "Career Awareness" 2-3, "Career Concepts" 4-6, and "Personal Career Readiness" 7-8. Details regarding the development and validation of these instruments are presented later in the evidence of effectiveness section of this report.

Infusion Units

Teachers have developed a series of units (110) that integrate career education objectives and concepts with a wide range of content areas at every grade level from K-8. All units are accompanied by pre- and posttests for the assessment of student progress. By using these units, teachers can ensure that career education becomes an integral part of the curriculum rather than another element that is added on. Each content-based unit is designed to achieve several career education objectives. There are units in a wide variety of curriculum areas, as shown in the display of sample unit titles on the next page.

Sample Unit Titles and Curriculum Areas

Sample Unit Titles	Curriculum Areas
News Broadcasting	Language Arts
Economic Production - Manufacturing	Social Studies
How Do Familes Help One Another	Health
Art: Sculpture and Architecture	Art
The World of Music	Music
Research Skills	Reading
Astronomy - Our Moon	Science
Checks and Checking Accounts	Math
Goods and Services	Practical Arts

Although the units can be used alone, Project MATCH staff recommend that they be used in conjunction with other elements of the program such as the skill continuum. For example, teachers can use the results of student performance on unit pre- and posttests to identify areas in which the students need additional work. The skill continuum can then provide supplemental resources and activities in the area in question. See Appendix C for a sample page from an original infusion unit.

Infusion units come in two formats. The first format was used with the original 80 units which included: concepts, performance objectives, activities, resources, and evaluation. The second format was used with the Experiential Taxonomy Career Education Units. These units are a unique professional package that can greatly enhance the planning and implementation of the career education curriculum. The units contain student objectives with activities, learner behaviors, learning principles, and teaching strategies, all keyed to the taxonomy. The units are further keyed taxonomically to three levels: problem solving, critical thinking, and creativity. Suggested resources are included as well as strategies for the implementation and for the assessment of student growth. Teacher reaction to the units has been excellent. The units have been shown to enhance student achievement of career education goals. The results of a recently completed evaluation study showed that most students in classes in which the units were used dramatically out-scored students in classes using the infusion units that are not keyed to the taxonomy. A sample page from a unit is shown in Appendix D.

The Experiential Taxonomy

The taxonomy[1] is composed of five hierarchical steps carefully sequencing the learning process for teachers and students. The five steps are defined below.

1. Exposure: Consciousness of an experience. This involves two kinds of exposure and a readiness for further experience.

2. Participation: The decision to become physically a part of an experience. There are two levels of interaction within this category.

3. Identification: As the participation modifies the experience, the process of identification with the experience begins. There are four levels of activity within this category.

4. Internalization: The participant moves from identification to internalization when the experience begins to affect the life-style of the participant. There are two levels in this category.

5. Dissemination: The experience moves beyond internalization to communicating the experience to others. It goes beyond positive sharing which began at level 3 and involves two levels of activity.

Because the experiential taxonomy provides a synthesis of the cognitive, affective, and psychomotor elements of the learning process, it is a valuable aid for realistically planning, implementing, and evaluating educational objectives and the related teaching-learning act. The taxonomy thus provides a means of dealing with the totality of classroom activities. It makes it easier for a teacher to plan objectives appropriate to the needs of an individual learner, or groups of learners, because the teacher can deal with total individual needs in a succinct and logical manner. Additionally, it helps teachers to recognize and understand the status of individual students in terms of a particular experience, thus enhancing the teacher's ability to develop new strategies and activities designed to help each individual through further levels of experience. Further, it can be of vital importance in teacher self-evaluation and professional development. When the teacher learns to use the taxonomy for self-evaluation, it becomes a very effective tool in professional growth.

An Experiential Taxonomy Teaching Strategies Coding System has been developed from the basic taxonomy. This coding system, which is totally and completely unique, can be used by teachers for self-evaluation and professional development.

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[1] The theoretical base for the taxonomy is discussed in the following source: Steinaker, N., & Bell, M. R. The experiential taxonomy: A new approach to teaching and learning. Ontario, CA: Project MATCH, 1977.

Teachers can learn this system in a one-day workshop and then, with minimal monitoring, can actually code their own lessons. Project teachers have done this and have reacted positively to it. To cite one teacher, "The coding system has really helped me understand what is happening in my classroom. I see it as a means of helping me in my planning and teaching."

Career Education Games/Career Center Activities

Project MATCH has developed a number of career education games and career center activities to be used as supplemental activities in grades K-8. These games and activities are designed for use with small groups of students when their classmates are involved with other activities. For example, the games may be used to reward students who complete their math or other assignments. Each game or set of activities is accompanied by simple and straightforward instructions and suggestions for use. Responses from students and teachers have been overwhelmingly favorable.

Special Programs

Special programs are courses of study or special curricula which include career education concepts as well as subject area materials. There are five major special programs. Samples of these are not included because of the length of the programs, but each is described below.

Simutown (Grades 5-8). This highly successful and well-accepted program has been contracted for publication by Occupational Awareness, Inc., of Los Alamitos, California. It is a simulation program in economics, consumerism, civic operation, and citizen responsibility. Its major simulation activities are centered in banking, business operation, and city government. It is strong in the content areas of mathematics, language arts, and social studies. It contains a program pre-posttest, suggested vocabulary tests, and other evaluation instruments. The program has been successfully used in grades 5 through 8 and is popular with teachers, students, and the community. This program can be utilized as it is or it can be adapted to meet the special needs of individual students or teachers. Suggestions for adaptation are contained in the instructions for the program.

Elements of the program are usually introduced in the fourth or fifth grade. The banking and election units, in particular, are popular at these grades. In sixth grade, the complete program may be used daily for a 10-week period. In

Project MATCH, all students experience the complete program by the end of eighth grade. However, the program can also be used with high school students with special needs.

Student responses to the program include the following comments: "I never knew before that it takes a lot of cooperation to get a city run." "I learned that mayors can't do everything that they want to; they have to use their council." These comments are typical of remarks that the students make as they learn how the real world functions through this program. It is particularly strong in helping students learn their roles as consumers and producers.

Citizen Apprentice Program (Grades 7-8). The Citizen Apprentice Program provides junior high students with modified on-the-job work experience and on-site observation and evaluation of business practices. In Project MATCH the program is offered as a social studies elective in a departmentalized junior high school. Arrangements are made with local businesses in a shopping area near the school to have the students assigned to them for 10 class periods, during which time the student actually works alongside of, and observes, his/her business partner as he/she goes about performing the duties of a job. District buses provide transportation for students to their assigned stores, all located in a small local shopping center. This on-site observation is preceded by three weeks of intensive classroom preparation that involves a detailed study of shopping centers in general, and job application and interviewing procedures. Before each visit to their assigned businesses, students are made aware of and are responsible for obtaining specific, pertinent facts regarding the operation of the businesses.

This on-the-job experience leads to mutual understanding between students and business people. The adult business people tend to develop a more accurate idea of what junior high school students are like. Similarly, the students are able to understand and appreciate the business people and their concerns. Thus, school-community relations are enhanced. Students are also better able to understand and evaluate the relations between job values, job satisfactions, and desired life-styles. Additionally, the students are able to understand why competency in basic skills is necessary to hold down even the simplest job. This program provides a framework for developing a district program, and it can be easily adapted to meet the unique needs of many school districts.

Schools wishing to implement the program should take into account a number of considerations. First, businesses participating in the program must be care-

fully selected if students are to benefit fully. Business sites should also be relatively close to the school to minimize transportation costs and commuting time. As already noted, the number of participating students must be kept in reasonable bounds to ensure adequate supervision. In spite of these caveats, the program can be easily adapted to the circumstances of a wide variety of school districts. For example, in rural districts where business sites are not accessible, the program can use business officials as guest speakers to the classrooms of the district. And field trips can be used to familiarize the students with a variety of government and commercial institutions.

Individualized Reading Center Program (Grades 7-8). This is a career education reading contract. Students proceed through a series of individual contracts that utilize career materials designed to increase self-awareness, develop career awareness, explore job clusters and focus on specific job study. Commercially prepared materials are available in a resource area in the reading center of the target junior high school. These materials have been coded by reading levels ranging from the fourth to the twelfth grade levels. As students attain improved reading skills in vocabulary and comprehension, as measured by the Comprehensive Test of Basic Skills administered three times a year and more frequent teacher evalution, they are moved to career materials of greater reading difficulty. Career filmstrips, tapes, kits, and hardback texts are used to teach listening, vocabulary, note-taking, outlining, summarizing, and reading for understanding. Students are given the opportunity to practice decision making since they are allowed to choose specific activities (according to their abilities) within the four career education aspects of self-awareness, career awareness, job families, and particular job studies.

Students are required to complete at least two career education reading contracts at each grade level. By the end of the eighth grade, all students have usually completed a minimum of four reading contracts.

The program can easily be adapted using the present contract format. Once student needs are identified, contracts can be developed based on material available in the school library. The program includes a guide to selecting appropriate reading materials according to the reading level of students and career education objectives to be mastered. The program can also be adapted for use in the regular classroom rather than in a special reading center. Additionally, the program can be modified for students at the elementary level.

English Course of Study (Grades 7-8). This program infuses career education concepts into English instruction. It is designed for student achievement of

both career education and English objectives. Study skills, interviewing, and creative writing are emphasized. Students are encouraged to do career research in the real world context in which they will soon be participants. Teacher and student response to the program has been excellent. The chart below shows the materials and activities included in the English Course of Study.

English Course of Study Materials and Activities

Materials	Activities
Interest Inventory	Using the Yellow Pages
College Worksheet	Selecting a Job
A Sample Business Letter	Writing a Sample Business Letter
Personality Quotient Rating Chart	Interviewing
Employment Self-Quiz	Asking for References
Career Survey	Completing an Employment Application Form
What Is the Job	Understanding Salary Deductions
Vocabulary Exercises	Understanding Fringe Benefits
Occupational Groups	Understanding Social Security
Job Exploration	Establishing Credit
Crossword of Life	Applying for a Social Security Number
Personal Fact Sheet	Ordering from a Catalog
Credit Card Application	Researching to Become an Expert
Sample Career Essay	Writing a Career Research Report
Driver's License Application	Writing an Autobiography
	Choosing a College
	Applying for a Driver's License

Depending on their ability, students can begin the program in seventh grade. By the end of the eighth grade, all Project MATCH students have usually participated in the program.

Individualized Learning Activity Packages on Career Decision Making (Grades 7-8). Another of the six special programs is a series of six learning activity packages (LAPs): "Getting Started," "Ten Years From Now," "Careers: The Big Picture," "Career Closeup: Maybe I'll Become...," "Something of Value? Maybe I'll Become...," and "On My Way." The focus of the LAPs is career decision making

for students. Each LAP is a self-contained career-oriented individualized learning sequence. The Personal Career Readiness Test is used as a pre- and posttest for the LAPs.

The series of LAPs guide students through a complete career decision-making process. Students engage in self-appraisal, interest identification, career awareness, and career planning. They are also strong in vocabulary building, practical math, and study skills. Students are expected to complete all six LAPs in a school calendar year. By the end of the sixth grade, LAP students are able to develop a career plan with specific, well-defined goals.

Students can use the LAPs with supervision; in this case, a librarian, aide, or counselor is assigned to collect the students' completed material and retain the LAP summary. Or LAPs can be used in teacher-directed, individualized group activities.

The LAPs are an excellent supplement to content areas such as social studies, English, reading, and math. In Project MATCH they have even been used by counselors in their interactions with students. And some LAPs are designed to be done at home with family members. Schools using the English Course of Study may want to utilize the LAPs selectively since there may be some overlap between the two programs.

Summary Comments

Used in the proper sequence, the elements of Project MATCH discussed above represent a coherent career education program for grades K-8. Schools wishing to adopt the program are encouraged to adapt the materials and procedures to fit their unique needs. The terminal performance objectives and the skill continuum should be viewed as the basic building blocks of the program. The infusion units and the special programs are also key elements. At the junior high level, students become increasingly involved in the special programs. Hence, the infusion units are used more selectively at this level. However, if no special programs are used, Project MATCH staff recommend that most of the infusion units be used in conjunction with the skill continuum.

To achieve the maximum benefits from the special programs, Project MATCH recommends that they be used in the following sequence: (1) Simutown, (2) Citizen Apprentice Program, (3) LAPs and/or English Course of Study. This sequence is appropriate for junior high school with grades 6-8 or grades 7-9. The sequence is logical in that students are first exposed to the world of work through a simulated experience. Then they participate in a modified on-the-job work ex-

perience. Finally, students build on these experiences by exercising career decision-making skills and doing research on careers of interest.

STAFFING AND MANAGEMENT

Project MATCH operates within the framework of existing school staffing arrangements. Because it is curriculum-oriented, it does not require changes in regular staff assignments, duties, or procedures. The project can easily be implemented in schools with a variety of staffing patterns including departmentalized staffing, multi-graded classrooms, and various kinds of differentiated staffing patterns. In most small to moderate sized school districts the management responsibilities of coordinating the project and maintaining liaison with Project MATCH can be assumed by an existing administrator, teacher, or curriculum consultant. Large districts, however, may need to hire a part-time person to coordinate the project activities. A part-time clerical person may also need to be hired to assist the project coordinator. There is no need for an evaluator to be assigned exclusively to the project because the evaluation staff of an adopting school district should be able to provide the required assistance. The management strategies required by the project are implicit in the role of the project coordinator and in the description of the implementation process, which will be discussed later in this report. The management responsibilities and qualifications of the project coordinator are shown in the chart below.

Project Coordinator

Management Responsibilities	Qualifications
Arrange and organize the inservice training in conjunction with Project MATCH	Administrative experience and credentials
Act as liaison with Project MATCH	Interest and skill in curriculum development and career education
Monitor the implementation of the project	Ability to establish and maintain good interpersonal relations with teachers
Prepare evaluation materials in cooperation with project MATCH	Familiarity with the basics of educational program evaluation

Staff Development

A strong inservice training program has been essential to the success of Project MATCH. Indeed, the success of the original program has been attributed to the fact that it was developed by the teachers of the district where it was implemented. Because of this fact the teachers were committed to using the program, and they felt that it belonged to them. Staff development has a number of components.

Summer Writing Workshops. In summer workshops, participants developed the major program components, wrote the terminal performance objectives, worked on curriculum infusion units, and, in later sessions, they edited and refined the materials. About 15 teachers participated each summer. During the third summer workshop, the experiential taxonomy and the experiential taxonomy teaching strategies coding system were introduced and used. These workshops have been very successful in terms of program development and implementation.

Visits. These include visits to other school districts with career education programs and to classrooms within the Ontario-Montclair District where career education is in progress. The first type of visit was used primarily during the first project year, the second during the project years since then.

Career Education-Community Seminars. These have been extremely well received and effective staff development programs. They deal with a theme or problem in career education and are set up to include teachers, administrators, county and state consultants, school board members, students, and community representatives. They provide a format for a lively interchange of ideas and points of view. Eight have been held and two more are planned. Most recently, they dealt with the experiential taxonomy and its added dimension to the program. Past seminars have dealt with simulation, utilizing the community, economic skills, consumer competencies, and curriculum planning. One seminar served as a program review.

Presentation in Staff Meetings. The project director and teachers have made a number of presentations at target school staff meetings reviewing curriculum, infusion strategies, special programs, and other program elements. These presentations are designed both to inform teachers about the program and encourage its wider use and have proved helpful.

Small Group Inservice Training Days. Teachers frequently have been brought together for special inservice days dealing with particular project or teacher

needs. These sessions have focused on curriculum writing, game development, theory discussion (experiential taxonomy teaching strategies coding system, for example), program review, and grade level meetings.

Use of Consultants. Consultants from various fields have been invited to help project teachers. These consultants include teaching practitioners, school administrators, college instructors, and career education consultants from the county schools office and from the State Department of Education.

Summary. The inservice workshops and their instructional methodology outlined above have led to an important change in teacher functioning and thinking. The infusion approach to career education has led teachers to dramatically change their orientation to the teaching process. For example, one first grade teacher recently remarked, "I teach career education naturally now. I don't have to have a special unit as a guide. We talk about jobs and careers when they come up naturally in the program." Similar comments have been made by a number of teachers in the project. The project's definition of career education as the "pragmatic relationship between the real world aspirations of students and what actually goes on in the classroom" is the basis for this kind of change in the teachers. Teachers who have been exposed to the program are able to make career education either an overt or covert aspect of the curriculum.

A carefully planned and conducted inservice training program is essential for the successful adoption of Project MATCH. Therefore, adopting schools should work closely with the staff of Project MATCH in developing and conducting inservice training for their staffs. The inservice training for Simutown, for example, requires one day. Three days of training are needed for the adoption of all program elements. If districts wish to train teachers in the use of the experiential taxonomy teaching strategies coding system, an additional day of training is required. Although it is recommended that someone from Project MATCH be involved in planning the training, the actual training can be conducted by the project coordinator of the adopting project or by an appropriate member of the district educational staff.

PROGRAM IMPLEMENTATION

Project MATCH has developed a diverse career education program with the purpose of infusing career education concepts into the regular curriculum of a K-8 school district. The program can be adopted either in part or as a whole by a wide variety of school districts. Most school districts, while adopting parts

of the program in toto, will probably want to adapt most aspects of the program to fit the unique characteristics of their district. In either case implementation is relatively simple, although requiring a sequential planning process. In general, implementation of the program should include the following tasks.

Select a Planning Group

The planning group should represent staff, administration, and community. Students should also be involved where appropriate. The group should be representative of the ethnic and social groups of the community. Male and female representation should also be approximately equal. Responsibilities of the planning group should be specified and should include some or all of the following:

- establish the extent of need for the program
- review project materials
- select the program, and/or portions of the program, for possible implementation (augment the group with staff members at this time)
- monitor the implemented program previewing evaluation procedures, and
- approve the evaluation report.

The group should plan to remain intact throughout the project and should function as a continuing advisory group when the project is implemented.

Assess District Needs in Career Education

A crucial task in developing a career education program, or any educational program, for that matter, is the identification of specific local needs that may be unique to the community or the school district. This task is a function of the planning group with input from teachers, administrators, consultants, curriculum specialists, parents, and the community. Data should be collected regarding school district objectives, student progress toward meeting these objectives, test scores, and other pertinent areas. Finally, a needs statement should be developed that integrates the findings of the planning group.

Review Project Materials

In this stage, Project MATCH and its various materials should be examined for their suitability to the circumstances of the adopting schools and communities. It is important, for example, to determine whether or not the goals and objectives

of the project are consistent with the needs that have been identified by the planning group. Further, the feasibility of adopting the Project MATCH approach should be determined in light of the organization and function of the curriculum in the adopting schools. Some general questions to be answered with regard to adopting the project include the following: Is the staff amenable to change and to new programs? Do district objectives and needs coincide with the materials and expected outcomes of Project MATCH? For what populations of students is the program planned? Is there community and staff awareness of the need for career education?

A series of descriptive materials is available free of charge from Project MATCH to help school districts decide whether or not to adopt the program. Persons interested in learning more about the program are also encouraged to visit Project MATCH.

Implement the Project

Project MATCH, with its abundance of materials, can be modified as needed to fit the specific needs of a wide variety of school districts. However, Project MATCH staff recommend that districts adopt the full program. The full program includes the following elements:

- three infusion units per grade level, K through 8
- skill continuum at each grade level, K through 8
- games and individualized activities (Career Center grades 2 through 8)
- At least one special program, grades 6 through 8
- Project MATCH-developed evaluation materials.

These materials can be used as prepared by Project MATCH or they can be adapted to meet the specific needs of an adopting school district. Any adapting of materials should be done cooperatively with Project MATCH. Project MATCH personnel are available to provide technical assistance and to work with adopting districts under appropriate arrangements.

Any school district may use selected project materials for specific career education needs. Selected units or special programs can be used at any grade level to meet career education needs and goals. The skill continuum itself can be a free-standing competency-based career education program used without reference to other Project MATCH materials. However, adaption or adoption of selected materials may not result in student gains similar to those observed in

Project MATCH. Adopting schools should avoid the use of Project MATCH materials as a separate career education course of study. Its basic function is that of an infused curriculum project.

It is important to have staff support for Project MATCH. From the inception of planning, staff members should play a major role in the decision to adopt Project MATCH, in reviewing materials, and in awareness-level activities. Without staff support, the program's chances of achieving the expected results would indeed be limited. Wherever possible, staff members should be involved in any on-site visitation to Project MATCH. When the project has been implemented, staff members should participate in monitoring the activities and in collecting process evaluation data. In addition, they should be aware of and assist in the outcome evaluation procedures.

An important but seemingly insignificant issue in implementation has to do with the location of the career education library containing the career education materials. The original developers of Project MATCH believed that the center should be located in a central location, preferably in the central administration building. Such a strategic location not only makes the center's materials accessible to teachers who have to use the central administration building for a variety of purposes, but the location also is symbolic in that it offers physical evidence that the program is central to the district operations and that it is a well-integrated part of the district.

For potential adopters of the program, sample packets are available free of charge describing the major components of the project and how to adapt them to meet the unique needs of school districts. In addition, the following are available for districts wishing to adopt the project:

Handbooks of Materials, Techniques and Procedures

Title	Description	Cost
Twelve Steps to Experiential Curriculum Development	Gives 12 steps to curriculum development in a consistent and realistic way.	$2.25
Five Steps to a Career Education Program	Briefly reviews the methods and steps a school or school district can do to plan, implement, and evaluate a career education program.	$2.25

COSTS

The costs associated with adopting the project are presented in the chart below. Note that the figures do not include developmental costs such as the salary for the full-time project director.

Level of Funding

	INSTALLATION (Non-recurring Costs)	SUBSEQUENT YEARS (Recurring Costs)
* Personnel (salary for part-time clerical)	$4,000	$4,000
Personnel Training (for 2 or 3 days of inservice training)	375	125**
Facilities	0	0
Equipment and Materials (for one set of project materials	400	0
Consumables (for replacement of tests and other instructional materials)	0	100
Other Costs - Specify:		
Technical Assistance (at least 1 day of technical assistance is recommended during the initial year of adoption)	125	0
	$4,900	$4,225

* A part-time clerical staff person is usually not needed for small-to-moderate sized adopting districts.

** For one day of inservice training

EVIDENCE OF EFFECTIVENESS

Evidence that the Effects Are Attributable to the Intervention

The evaluation was conducted by the evaluation staff of the Ontario-Montclair School District, with some technical assistance provided by consultants from the California State Department of Education. The data reported here were obtained during the 1976-77 school year. The evaluation design utilized pre- and post-tests on career education classes and non-career education classes. These classes were randomly selected, one class per grade, from schools assigned to the experimental and comparison conditions. The career education (experimental) and

non-career education (comparison) groups were each composed of one junior high and two elementary schools. The career education schools were chosen because their teachers and administrators expressed interest in the project and because they were receiving no special funding (e.g., ESEA Title I) that may have made their students different from the non-career education students. The schools not receiving career education were chosen on the basis of their similarity to the treatment schools along such educationally relevant dimensions as socio-economic status, ethnic composition, and student scores on the Cooperative Primary Test and the Comprehensive Test of Basic Skills.

Within each career education and non-career education school, participating classes were selected by lottery. There were no significant differences between the pretest scores of career education and non-career education classes on the project-developed career education instruments. An analysis of student scores on the previously mentioned standardized tests also confirmed the equivalence of the two groups. Therefore, the two groups met the conditions for a valid evaluation of the impact of Project MATCH programs.

Interpretability of Measures

Student attainment of project objectives was assessed by four project-developed career education tests administered in October and in March as pre- and posttests. Each test was designed for use with two grade levels. The tests contained multiple-choice items that reflected each of the ten previously discussed general areas of career education. The tests were developed over a period of three years by Project MATCH staff in collaboration with teachers in the treatment schools. A sample test item from the Level III test is presented below.

A Sample Test Item From the Level III Test

17. Two kinds of income tax are usually taken out of the worker's pay in California. They are:

    (a) Federal and City
    (b) Federal and State
    (c) State and County
    (d) State and City

A pool of test items was developed from the project objectives. The items were pilot-tested, reviewed by teachers, and modified accordingly. A formal study was conducted to determine whether the tests were reliable and whether they actually measured the attainment of career education objectives. Test items that were not satisfactory were either discarded or modified. See Appendix E for more details concerning establishment of the validity and the reliability of the tests.

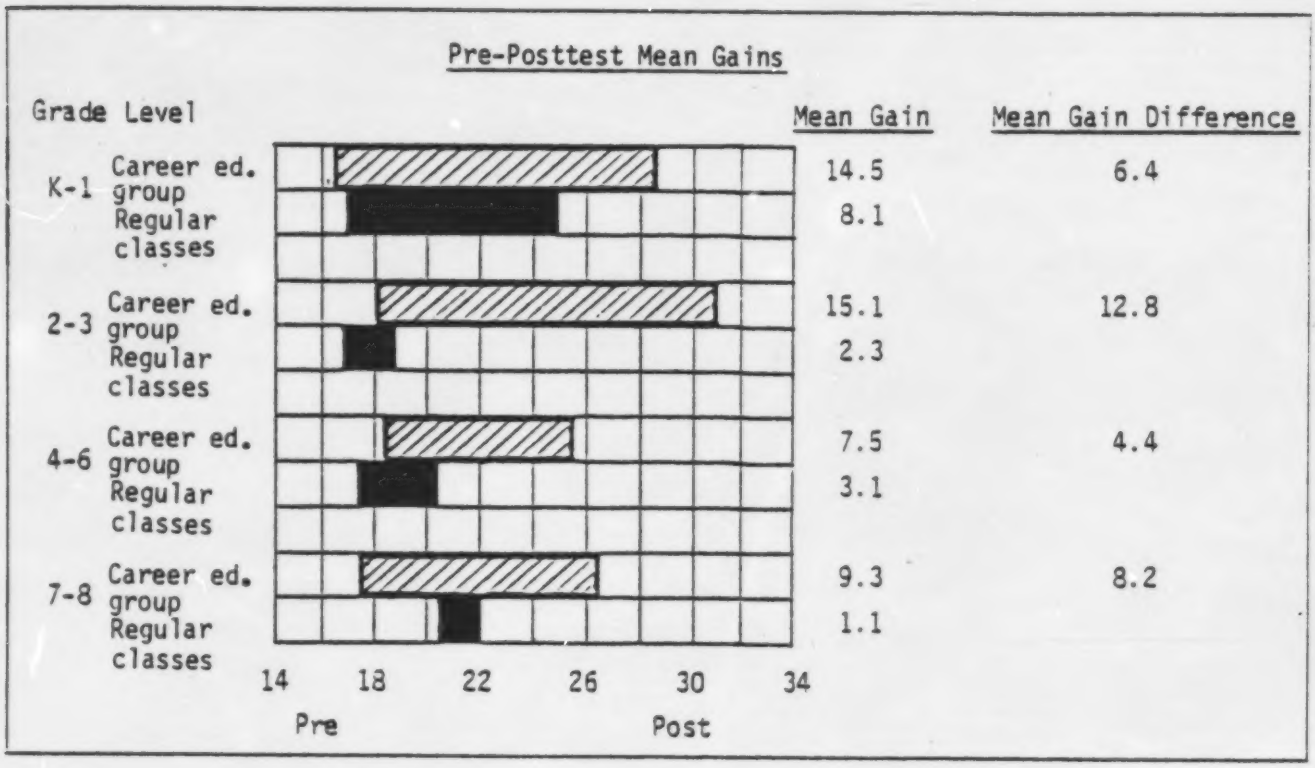
Credibility of Evidence

All testing was conducted at the school sites. Tests were administered to career education and non-career education groups under similar conditions at approximately the same time. In grades K-3, the tests were administered orally by the project director or by members of his staff under his direct supervision. In grades 4-5, teachers read the questions to the students, who used answer sheets for their responses. In grades 6-8, students read the questions and made their responses on answer sheets. The project director personally reviewed testing instructions with all teachers. He also reviewed, monitored, and approved all scoring procedures. The project evaluator was responsible for all data analyses.

Evidence of Impact

Mean posttest differences between career education and non-career education classes were analyzed using the t-test for independent groups. The career education classes consistently out-performed the non-career education classes by a wide margin on the posttests. On all four tests, group differences were highly significant. The analysis was performed only on scores of those students who were present for both the pretest and the posttest.

The table on the next page presents graphic evidence of the project's impact on the treatment classes. It displays the pre-post mean gains of the career education and non-career education groups on the project-developed evaluation instruments.



Favorable Review by Joint Dissemination Review Panel

The Joint Dissemination Review Panel (JDRP) was established by the Education Division of the Department of Health, Education, and Welfare in 1972. The joint U.S. Office of Education - National Institute of Education (NIE) Panel currently has 22 members, eleven from each agency, appointed respectively by the Commissioner of Education and the Director of NIE. The JDRP meets periodically to review the evidence of effectiveness submitted for a wide variety of federally supported educational products and practices, with effectiveness being the sole criterion for approval by the JDRP. It is charged with the responsibility of ensuring that educational interventions - projects, products, or practices - have been shown to have positive impacts on their recipients before they are disseminated with federal funds or endorsed by the Education Division.[1]

In March 1978, the JDRP reviewed Project MATCH and approved it for nationwide dissemination.

[1] Tallmadge, G.K. The Joint Dissemination Review Panel: IDEABOOK. Washington D.C.: NIE/DHEW, September 1977.

CONCLUSION

The nature of the evaluation design allows one to be confident that the gains observed in the career education classes are in fact attributable to Project MATCH. The career education and non-career education classes were equivalent along educationally relevant dimensions. In addition, the educational experiences of the two groups were similar, except, of course, for the fact that the career education group was exposed to Project MATCH activities. The use of a comparable non-career education group in the evaluation provides a highly credible estimate of how the treatment group would have performed had it not received the intervention. Thus, the natural growth of students, effects of having taken the pre-test, out-of-school experiences, and other extraneous factors can be ruled out as possible explanations of the observed effects. In addition, the characteristics of the teachers can be ruled out as a plausible explanation of the results because the teachers who participated in the evaluation were randomly chosen from the schools.

The career education instruments used to assess the impact of the intervention are highly credible because of the test development process used that ensured their validity and reliability. Furthermore, the well-supervised data collection and analysis procedures provide additional assurance that the findings are objective.

In general, the evaluation provides convincing evidence that Project MATCH produced educationally significant results. The gains of the career education group were large, exceeding those of the non-career education group by a wide margin. Moreover, the gains are in areas generally accepted as important to career education. Additionally, the project's concepts, practices, and techniques are easily identifiable, have general application, and can be adopted or adapted elsewhere with minimal cost.

Appendix A

Terminal Performance Objectives:

Career Awareness

1.0 GTPO - Students will have been exposed to the various career clusters and will realistically select those clusters related to individual aptitudes, interests, and abilities.

1.1 Students will become familiar with the fifteen job clusters.*

Mastery Level Definition (MLD)

Students will identify 10 of the 15 job clusters.

1.2 Students will identify specific jobs within career clusters.

MLD

Students will identify five jobs in at least six given job clusters.

1.3 Students will relate specific jobs to the three categories of work with (a) people, (b) ideas, and (c) things.

MLD

Students will relate specific jobs to three main categories of work: (a) people, (b) ideas, and (c) things.

1.4 Students will identify career clusters prominent in the community.

MLD

Given the job clusters, the students will identify those prominent in our community.

1.5 Students will evaluate selected occupations in terms of education needed, tools, setting, and products or services.

I level: 6 R level: 7 M level: 8

Students will evaluate at least three selected occupations in terms of education needed, tools, setting, and products or services.

*The introductory level for each objective is primary, the reinforcement level is continuous, and the mastery level is 8th, unless otherwise stated following the terminal performance objective.

1.6 Students will compare the relationship between patterns of living and various careers in the local and world community.

MLD

Students will compare the relationships between patterns of living and at least three selected careers in the local and world community.

1.7 Students will identify with workers in various occupations.

MLD

Students will identify with workers in at least two occupations.

Appendix B

Career Education Skill Continuum

This Career Eduction skill continuum is designed to provide a frame of reference for teachers involved in a Career Education program in grades K-8. Elements included in the continuum are:

- Terminal Performance Objectives in

  Career Awareness
  Self Awareness
  Attitude Development
  Educational Awareness
  Economic Awareness
  Consumer Competencies
  Career Orientation
  Career Exploration
  Career Planning and Decision Making
  Civic Responsibility

- Graded task sequence to achieve T.P.O.'s in each of the above.
- Content area bases for activities.
- Resources both district-developed and commercial.
- Evaluation references and strategies.

The District perspective sees Career Education as intrinsically linked to existing curricula through infusion into content units and content oriented special programs. Ancillary to this strong curriculum component are staff development, community involvement, and non teacher counseling. It is the purpose of this continuum to help teachers become aware of an appropriate sequence of Career Education objectives and a series of graded task sequences designed to achieve those objectives. Further, the teacher can recognize a content base for the skill activities and be directed to evaluation materials to define achievement and gain.

A teacher can functionally use this continuum by selecting resources and evaluation materials appropriate to the student's achievement level and then sequencing a series of activities designed to achieve the objective noted. The program can have as much flexibility as is necessary. Each child, for example, can be individually contracted or assigned a sequence of activities or a small group or even the total class can experience a series of activities. Basically, this is a planning tool to make Career Education become an intrinsic part of the curriculum naturally and without disrupting existing curriculum sequences.

1.0 CAREER AWARENESS

T.P.O. 1.1 Students will demonstrate understanding of the fifteen U.S.O.E. job clusters

Grade	Suggested Activities	Content Base	Resources	Evaluation
K	1.1.1 Introduce term "job family." 1.1.2 Discuss how jobs depend on each other and these are part of a job family. 1.1.3 Talk about how we depend on many people. 1.1.4 Role play jobs and family roles and talk about how we depend on each other.	Social Studies Social Studies (Language Arts for discussion) Social Studies, Language Arts Language Arts, Social Studies	DISTRICT: Curriculum Units - Zoo, Farm, Circus, Helping Myself and Others COMMERCIAL: Games - "Our Helpers" Text - Our Working World: Families Career Hats, Simplex Playboards. Film - Getting to Know Me Filmstrips - "About Myself," "Families" Trade Books - Many	1.1.1 Pre-post tests for each of the curriculum units. 1.1.2 Career Awareness K-1 program pre-post test. 1.1.3 Discussion response teachers list. 1.1.4 Student function in role playing.
1	1.1.1 Use the term "job cluster" synonymously with "job family." 1.1.2 Discuss how we depend on each other and that some jobs more closely depend on each other, i.e., hospital worker. 1.1.3 Study community helpers and how many of them relate to a job cluster. 1.1.4 Find out how many people work together to help us have balanced meals	Social Studies Social Studies, Language Arts Reading, Social Studies Reading, Health	DISTRICT: Curriculum Units - A Good Lunch, Dinosaurs, How Do Families Help One Another, Small Town-U.S.A., The Food You Eat COMMERCIAL: Games - "Our Helpers," "My Family" Text - Our Working World: Families, Our Working World: Neighbors Kits - Tinker Toys, Career Hats, Simplex Playboards	1.1.1 Unit pre-post test. 1.1.2 Career Awareness, K-1 program pre-post test. 1.1.3 Teacher-made evaluation of content materials. 1.1.4 Discussion response to media and unit sequence - teacher list

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Appendix C

Original Infusion Unit Format

Communication

Title

CONCEPTS	PERFORMANCE OBJECTIVES	ACTIVITIES	RESOURCES	EVALUATIONS
1.0 We express moods and communicate attitudes in different ways including nonverbal ways.	1.0 Students will demonstrate awareness of different moods through interpretation of expression.	1.0.1 Discuss nonverbal communication including a person's expression. 1.0.2 Look at various pictures and discuss the moods and attitudes shown. 1.0.3 Show selected attitudes and moods through personal expression.	Pictures of various people in many situations.	1.0.1 Pre-post test. 1.0.2 Evaluatio of discussion 1.0.3 Showing of attitude through expressions.
	1.1 Students will play the game "What's My Bag" through which they will be able to identify persons through nonverbal communication and mood and attitude pictures.	1.1.1 Play the game "What's My Bag" 1.1.1.1 discuss game. 1.1.1.2 have students prepare personal bag. 1.1.1.3 play the game.	Bag with things in it. Shaftel & Shaftel, Role Playing For Social Values	1.1.1 Completed game.
	1.2 Students will identify feelings through nonverbal cues.	1.2.1 Looking at pictures. 1.2.2 Discussing pictures. 1.2.3 Discussing role playing. 1.2.4 Role playing using nonverbal cues. 1.2.5 Identifying feelings expressed through nonverbal cues.		1.2.1 Role playing evaluations. 1.2.2 Identification of feelings through nonverbal cues.

Appendix D

Experiential Taxonomy Teacher Strategies Coding System Format

Taxonomic Level	Teaching Strategy	Descriptor	Teaching Role/Behavior
Exposure Sensory Response Readiness	1.1 Incentive Conditioning (goal setting)	Introducing an experience. Goal setting. Establishing stimuli.	Motivation - Presenting and focusing data. Demonstrating, presenting, and interacting with students. Teacher's aide is dominant. Students must be motivated to continue through experience. If only some are motivated, use them as catalysts in the next category for peer interaction and peer teaching.
	1.2 Data Presentation	Giving information, identifying experience, lecture, use of media.	
	1.3 Demonstration	Demonstrate a principle - show how to do. Use of realia/models.	
	1.4 Directed Observation	Focusing on particular or selected stimuli, establishing parameters, telling learners what to look for.	
	1.5 Data Exploration	Interacting with data or selected stimuli establishing a readiness for further experience. Usually in the interrogative mode. Preparation for participation.	
Participation Representation Modification	2.1 Modeling/Recall	Mental/physical reproduction (imitation) of a given or known example or concept (model). Learner recall based on a known reference.	Catalyst - Working with the data. Teacher role is vital here to continue student learning. Strategies 2.3 and 2.4 are most helpful in fostering peer interaction and peer teaching. Use groups, large or small, to foster interaction. Peer teaching can be incidental, accidental, and planned.
	2.2 Expanding Data Bases	Accumulating appropriate resources, generating data, reading, viewing, listening, discussion. Why questions or evaluate questions bringing added data.	
	2.3 Dramatic Play	Unstructured role playing.	
	2.4 Manipulative and Tactile Activities	Use of material, realia, and media. Hands on activities, how to use materials.	
	2.5 Ordering	Sequencing of data, arranging data, establishing material hierarchy, defining frame of reference.	

Appendix E

Reliability Study

A formal reliability study was conducted during the spring of 1976 on project students. Pearson r correlation coefficients were calculated to establish the test-retest reliability of the instruments. Biserial r (the correlation of each item with the total test scores) was used to establish the validity of the test. Test items developed in the previous year whose validity index indicated very low correlations were discarded or modified, and, in one case, the length of a test was increased to achieve higher reliability and validity for the instrument. The Pearson r and biserial r (mean) for each test are presented below, along with a number of items comprising each test.

Kindergarten - First Grade Level I (15 items)	
Pearson r Test-retest reliability	.92
Biserial r Item validity index (mean)	.40
Grade Two - Three Level II (41 items)	
Pearson r Test-retest reliability	.87
Biserial r Item validity index (mean)	.31
Grade Four - Six Level III (50 items)	
Pearson r Test-retest reliability	.81
Biserial r Item validity index (mean)	.35
Grade Seven - Eight Level IV (56 items)	
Pearson r Test-retest reliability	.88
Biserial r Item validity index (mean)	.29